

## **REMARKS**

Favorable reconsideration and allowance of this application are requested.

### **1. Interview Summary**

At the outset, applicants undersigned attorney appreciates the time and courtesies extended by Examiner McClendon during the personal interview of April 24, 2008. The substance of the discussion during the interview is adequately reflected in the Examiner Interview Summary Record of that date and thus further comment on the same is believed to be unnecessary.

### **2. Discussion of Claim Amendments**

By way of the amendments above, claim 1 has been amended so as to delete therefrom the substance of prior claim 7 which was introduced by the Amendment of December 4, 2007. The subject matter of prior claim 7 has now been reinstated as new claim 13.

Claim 1 has also been amended so as to clarify that component (iii) is required to be present in an amount between 5 and 25 wt.% as supported at page 5, line 33 of the specification and that the 60° gloss is  $\leq 30$  as supported by page 3, line 2 of the specification.

Therefore, following entry of this amendment claims 1-5 and 8-13 will remain pending herein for consideration. As will become evident from the following discussion, allowance of such pending claims is in order.

### **3. Response to 35 USC §103(a) Rejection**

The only issue remaining to be resolved in this application is the Examiner's rejection of prior claims 1-5 and 8-12 under 35 USC §103(a) based on Nachtkamp et al

(USP 5,804,647) in view of Ingrisch et al (USP 6,462,127). In this regard, Nachtkamp et al is apparently being employed for its teaching of an aqueous dispersion of self-crosslinking polyurethane, while Ingrisch et al is apparently being employed for its teaching of the use of reactive diluents. The Examiner then concludes that an ordinarily skilled person would "obviously" (35 USC §103(a)) employ the reactive diluents of Ingrisch et al with the polyurethane of Nachtkamp et al and arrive at the present invention. Applicants respectfully disagree.

Specifically, applicants note that pending claim 1 requires an isocyanate-terminated pre-polymer formed from the following components:

- (i) 5 to 65 wt% of at least one organic polyisocyanate;
- (ii) 0.8 to 4 wt% of at least one polyol containing ionic or potentially ionic water-dispersing groups, having two or more isocyanate-reactive groups and having a molecular weight in the range of from 100 up to 500 g/mol;
- (iii) 5 to 25 wt% of at least one polyol containing water-dispersing groups, having two or more isocyanate-reactive groups and having a molecular weight in the range of from 500 to 6000 g/mol;
- (iv) 10 to 80 wt% of at least one polyol containing crosslinkable groups, having two or more isocyanate-reactive groups and having a molecular weight in the range of from 150 to 6000 g/mol;
- (v) 10 to 70 wt% of at least one polyol not comprised by (ii) or (iii) having two or more isocyanate-reactive groups and having a molecular weight in the range of from 500 to 6000 g/mol;
- (vi) 0 to 50 wt% of at least one component not comprised by (i), (ii), (iii), (iv) or (v); where (i), (ii), (iii), (iv), (v) and (vi) add up to 100 wt%; and where the NCO:OH ratio is in the range of from 1.1 : 1.0 to 10.0 : 1.0.

As can be seen from the shaded cells in the table below, several compositional differences exist between claim 1 of the subject application and Nachtkamp et al:

<u>Component</u>	<u>Claim 1 of Subject '914 Application</u>	<u>Example 1 of Nachtkamp et al</u>
(i) polyisocyanate	5-65 wt. %	42.8 wt. %
(ii) polyol having two or more isocyanate-reactive groups	0.8 to 4 wt. %	5.7 wt. % of DMPA
(iii) polyol containing ionic or potentially ionic water-dispersing groups with a Mw 100 up to 500 g/mol	5-25 wt. %	None
(iv) polyol containing crosslinkable groups with a Mw from 150 to 6000 g/mol	10 to 80 wt. %	None
(v) polyol other than (iii) to (iv) with a Mw from 500 to 6000 g/mol	10 to 70 wt. %	41.3 wt. %
(vi) component other than (i) through (v)	0 to 50 wt. %	10 wt. % 1,4-butane diol and trimethylol propane

In addition to the above, substantial functional differences exist between the present invention and the compositions disclosed in Nachtkamp et al as evidenced by the attached Second Supplemental Declaration of Richard Coogan (hereinafter "Coogan II Declaration"). In this regard, it will be observed that Compositions A, B, E & F reported in the Coogan II Declaration showed substantial crystallization and thus lacked film forming capabilities. The films have a low gloss measurement however this low gloss was due to cracking and crystallization of the films, i.e. the films were not uniform or even a single continuous film. In this regard, the cracking was likely to be due to the choice of polyols used in Example 1 of '647 patent. The films showed a crystallization pattern which is often caused by the use of a hexane adipate based

material. Any film or coating would/should be a continuous film otherwise it does not offer protection to the substrate that it is coated on. Example 1 of Nachtkamp et al does not result in a film and subsequently does not offer protection to the substrate.

Although Example 1 of Nachtkamp et al appeared to exhibit a low gloss, the coatings were cracked and therefore did not actually form a film. It was only with the addition of 16% of a co-solvent (N-methylpyrrolidone - NMP) in compositions C and D that films could be formed. These films (prepared with NMP present) increased in gloss value by 300%. Yet Nachtkamp et al teaches that, although solvents can be used it is desirable to remove these by distillation (column 2, lines 4 to 9, example 1).

As can be seen from compositions B, D and F in the Coogan II Declaration, the addition of the thickening agent Acrysol ASE 60 (a Rohm and Haas crosslinked acrylic emulsion copolymer and likely to be incompatible with the polyurethane of Example 1 in Nachtkamp et al) neither improved film formation nor affected the film gloss.

As can be seen from compositions E and F of the Coogan II Declaration, the addition of a reactive diluent likewise neither improved film formation nor affected the film gloss.

Therefore, in view of the evidence provided by the Coogan II Declaration, it is clear that an ordinarily skilled person combining the reactive diluents of Ingrisich et al with the polyurethane of Nachtkamp et al would not result in the presently claimed invention. Withdrawal of the rejection advanced under 35 USC §103(a) based on such publications is therefore in order.

#### **4. Fee Authorization**

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed

**COOGAN et al**  
**Serial No. 10/540,914**  
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herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

Respectfully submitted,

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